

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
OPERATING PERMIT TECHNICAL REVIEW DOCUMENT**

**Permitting and Compliance Division
1520 E. Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901**

**Williston Basin Interstate Pipeline Company
Cabin Creek Compressor Station
E½ of SE¼ of SE¼, Section 16, Township 10 North, Range 58 East
HC 72, Box 6019, Baker, MT 59313
Fallon County, Montana**

The following table summarizes the air quality programs testing, monitoring, and reporting requirements applicable to this facility.

Facility Compliance Requirements	Yes	No	Comments
Source Tests Required	X		Portable analyzer
Ambient Monitoring Required		X	
COMS Required		X	
CEMS Required		X	
Schedule of Compliance Required		X	
Annual Compliance Certification and Semiannual Reporting Required	X		
Monthly Reporting Required		X	
Quarterly Reporting Required		X	
Applicable Air Quality Programs			
ARM Subchapter 7 Preconstruction Permitting	X		2484-04
New Source Performance Standards (NSPS)		X	40 CFR 60, Subpart GG
National Emission Standards for Hazardous Air Pollutants (NESHAPS)		X	Except for 40 CFR 61, Subpart M
Maximum Achievable Control Technology (MACT)		X	
Major New Source Review (NSR)		X	
Prevention of Significant Deterioration (PSD)		X	
Risk Management Plan Required (RMP)		X	
Acid Rain Title IV		X	
State Implementation Plan (SIP)	X		General SIP

TABLE OF CONTENTS

SECTION I. GENERAL INFORMATION.....	3
A. PURPOSE.....	3
B. FACILITY LOCATION	3
C. FACILITY BACKGROUND INFORMATION	3
D. CURRENT PERMIT ACTION	4
E. TAKING AND DAMAGING ANALYSIS.....	5
F. COMPLIANCE DESIGNATION	5
SECTION II. SUMMARY OF EMISSION UNITS	6
A. FACILITY PROCESS DESCRIPTION	6
B. EMISSION UNITS AND POLLUTION CONTROL DEVICE IDENTIFICATION	6
C. CATEGORICALLY INSIGNIFICANT SOURCES/ACTIVITIES	6
SECTION III. PERMIT CONDITIONS	7
A. EMISSION LIMITS AND STANDARDS	7
B. MONITORING REQUIREMENTS	7
C. TEST METHODS AND PROCEDURES.....	8
D. RECORDKEEPING REQUIREMENTS	8
E. REPORTING REQUIREMENTS	8
F. PUBLIC NOTICE	8
G. DRAFT PERMIT COMMENTS	9
SECTION IV. NON-APPLICABLE REQUIREMENT ANALYSIS	10
SECTION V. FUTURE PERMIT CONSIDERATIONS.....	11
A. MACT STANDARDS	11
B. NESHAP STANDARDS	11
C. NSPS STANDARDS	11
D. RISK MANAGEMENT PLAN.....	11

SECTION I. GENERAL INFORMATION

A. Purpose

This document establishes the basis for the decisions made regarding the applicable requirements, monitoring plan, and compliance status of emissions units affected by the operating permit proposed for this facility. The document is intended for reference during review of the proposed permit by the EPA and the public. It is also intended to provide background information not included in the operating permit and to document issues that may become important during modifications or renewals of the permit. Conclusions in this document are based on information provided in the original application submitted by WBI on June 12, 1996; a Title V renewal application submitted on January 31, 2003; and additional submittals June 3, 2003, and August 7, 2003.

B. Facility Location

Williston Basin Interstate Pipeline Company (WBI) owns and operates the Cabin Creek Compressor Station. This facility is located in the E $\frac{1}{2}$ of SE $\frac{1}{4}$ of SE $\frac{1}{4}$ of Section 16, Township 10 North, Range 58 East, in Fallon County, Montana. Fallon County is designated as an Unclassifiable/Attainment area for National Ambient Air Quality Standards (NAAQS) for all criteria pollutants. The Cabin Creek Compressor Station is located in a remote location 20 miles northwest of Baker, Montana. The adjacent land is used for grain cropland and rangeland. The area is also a developed oil and gas field. The nearest residences are the company-owned, WBI employee housing located approximately 1000 yards away.

C. Facility Background Information

On May 31, 1988, WBI was issued a permit for the operation of the Cabin Creek compressor station consisting of 16 natural gas compressor engines, located in the SW $\frac{1}{4}$, SE $\frac{1}{4}$, Section 16, Township 10 North, Range 58 East, Fallon County, Montana. The application was given Permit #2484.

On July 17, 1992, WBI was issued a permit to replace an existing 1961 Waukesha 1197G generator engine (248-hp) with a 1992 Waukesha 3521GL generator engine (544-horsepower (hp)) at their Cabin Creek facility. The old engine was removed. The application was given Permit #2484-01.

The Montana Department of Environmental Quality's (Department) BACT determination for Permit #2484-01 was the use of a Waukesha, Model 3521GL Lean Burn Combustion gas engine with emission factors of 2.0, 2.0, and 1.0 grams/bhp-hr for NO_x, CO, and VOC, respectively.

On March 31, 1994, WBI was issued a permit to increase the permitted operational horsepower and the CO emission factor for the recently permitted 1992 Waukesha 3512GL generator engine (544-hp). The engine was originally permitted to operate at 1200 rpm and the corresponding CO emission factor of 2.0 grams/hp-hr. The actual installed horsepower of the engine/generator set was site rated at 559 hp and limited to 900 rpm. This de-torquing of an engine generally increased the CO emissions; therefore, WBI could only achieve the manufacturers guaranteed emissions under limited conditions. This emission factor is also due to increase as a result of site-specific fuel analysis quality. WBI submitted a revised manufacturer's emission guarantee for CO of 3.3 grams/bhp-hr based on the results of a site-specific fuel analysis.

WBI also requested that the permitted emission limits be expressed in lb/hr rather than grams/bhp-hr, which is consistent with the Department's revised guidelines. The revision to the guidelines for developing an emission limitation is due to varying parameters such as engine RPM, operating load (bhp), ambient air temperature, gas temperature, site elevation, fuel gas quality, air/fuel ratio (AFR), field gas conditions, etc. Rather than limit the engine to a gram/bhp-hr limit, an hourly emission limit will allow operational flexibility.

On June 3, 2003, WBI was issued a permit for the installation and operation of an 1149 hp capacity natural gas fired turbine. WBI is a major stationary source of emissions as defined under the New Source Review Prevention of Significant Deterioration (PSD) program; however, potential emissions from the proposed turbine did not exceed any PSD significant emission thresholds and the permit action did not trigger PSD review.

Further, WBI submitted a modeling analysis including annual NO_x ambient air impacts as well as 1- and 8-hour CO ambient impacts from the turbine. Based on the ambient air modeling results initially submitted by WBI, and in accordance with the Department's "Monitoring Requirements" guidance document (October 9, 1998), the WBI facility, as initially proposed, was required to conduct ambient monitoring because the modeled NO₂ concentration was above 95% of the ambient standard.

Subsequently, WBI submitted a letter to the Department requesting various permit changes to keep the source emission impacts below the applicable ambient standards for NO_x and to avoid the requirement for ambient NO_x monitoring. Specifically, under this permit action, WBI was required to install a Non-Selective Catalytic Reduction (NSCR) catalyst on Unit 1, raise the stack heights on Unit 1 and Units 4 through 10, lower the allowable NO_x emission rates for Units 8 through 10, and limit the operating hours for Unit 4 to 3500 hours during any rolling 12-month time period. **Permit #2484-03** included conditional requirements for all previously cited equipment/operational modifications.

Furthermore, WBI requested that the Department modify the testing schedule for the 559-hp Waukesha 3521GL (GEN1). Previously, based on Department source testing guidance, WBI was required to test GEN1 on an every-4-year schedule. However, the Title V operating permit for WBI requires semiannual testing for this unit. Therefore, at the request of WBI the testing requirements for GEN1 have been modified to incorporate language allowing for consistency between the Montana Air Quality Permit and the Title V operating permit source testing schedules for this unit. Permit #2484-03 replaced Permit #2484-02.

On August 7, 2003, WBI submitted a letter of application for a modification to Permit #2484-03. WBI requested that the stack heights for Units #1, 4, 5, 6, and 7 be lowered. Additionally, to ensure compliance with the NAAQS and the Montana Ambient Air Quality Standards (MAAQS), WBI requested hours of operation restrictions on Units #4, 5, 6, and 7.

An Air Dispersion Modeling Analysis was submitted along with the modification request by Aspen Consulting Engineering Inc. (Aspen). After reviewing the permit action request and modeling analysis, the Department determined the proposed modification could be accomplished according to ARM 17.8.764(b) while adequately protecting the ambient standards.

In addition, according to ARM 17.8.764(c), the Department updated the emissions inventory based on emission factors, which more accurately reflect operation of the emitting units at WBI. The changes made to the emissions inventory do not affect substantive provisions of the permit. Montana Air Quality Permit **#2484-04** replaced Permit # 2484-03.

D. Current Permit Action

The current permit action is a renewal of WBI's Title V Operating Permit OP#2484-01 for the Cabin Creek Compressor Station. WBI's Operating Permit #OP2484-00 was applicable for 5 years and expired on August 23, 2003. WBI applied for a renewal of their Title V Operating Permit on January 31, 2003. Operating Permit **OP#2814-01** replaces Operating Permit OP#2814-00.

E. Taking and Damaging Analysis

HB 311, the Montana Private Property Assessment Act, requires analysis of every proposed state agency administrative rule, policy, permit condition or permit denial, pertaining to an environmental matter, to determine whether the state action constitutes a taking or damaging of private real property that requires compensation under the Montana or U.S. Constitution. As part of issuing an operating permit, the Department is required to complete a Taking and Damaging Checklist. As required by 2-10-101 through 105, MCA, the Department has conducted a private property taking and damaging assessment and has determined there are no taking or damaging implications. The checklist was completed on October 2, 2003.

F. Compliance Designation

The Department inspected the Cabin Creek Compressor Station on January 16, 2003; the facility was in compliance with all the applicable requirements. All source tests shall be conducted in accordance with the Montana Source Protocol and Procedures Manual.

SECTION II. SUMMARY OF EMISSION UNITS

A. Facility Process Description

The Cabin Creek Compressor Station is used to compress natural gas to the required pressure for transportation within the natural gas transmission system. Compression of the gas is accomplished with the use of 13 compressor engines. The Standard Industrial Classification (SIC) for this facility is “Natural Gas Transmission” which has an SIC Code of “4922”.

B. Emission Units and Pollution Control Device Identification

Currently, the Cabin Creek Compressor Station contains

Make	Model	Capacity
Waukesha	L7042GSU w/ NSCR	1109-hp
Ingersoll - Rand	6XVG	190-hp
Ingersoll - Rand	8XVG	300-hp
Ingersoll - Rand	8XVG	300-hp
Ingersoll - Rand	8XVG	300-hp
Ingersoll - Rand	12SVG	660-hp
Ingersoll - Rand	48KVG	880 HP
Ingersoll - Rand	48KVG	880-hp
Solar	Saturn Ph. IV	1100-hp
Solar	Saturn Ph. IV	1100-hp
Solar	Saturn Ph. IV	1100-hp
Solar	Saturn Ph. II	1200-hp
Solar	Saturn Mark II	1149-hp
Solar	Centaur	3800-hp
Waukesha	3521 GL	559-hp
Dehydrator Heater		15.25-MMBtu/hr

C. Categorically Insignificant Sources/Activities

The Administrative Rules of Montana (ARM) 17.8.1201(22)(a) defines an insignificant emissions unit as one that emits less than 5 tons per year of any regulated pollutant, has the potential to emit less than 500 pounds per year of lead or any Hazardous Air Pollutant (HAP), and is not regulated by any applicable requirement other than a generally applicable requirement.

Unit ID/Make	Model	Description
IEU1		Fugitive emissions from valves, flanges, open-ended lines, compressor seals, etc.
IEU2		Fugitive emissions from in-plant vehicle traffic and maintenance activities
Bryant	246-15	1.47-MBtu/hr Heater
Mueller	Climatetrol2 05-14	819-MBtu/hr Boiler
Mueller	Climatetrol2 15-12	770-MBtu/hr Boiler
Eclipse	D-6	450-MBtu/hr Boiler
EU19		Tanks (tanks containing hydrocarbon condensate, gasoline, diesel, alcohol, slop oil, ethylene glycol, and odorant)

SECTION III. PERMIT CONDITIONS

A. Emission Limits and Standards

The 1,109-Horsepower (hp) Waukesha Compressor Engine (EU1) is limited to 4.88 lb/hr for NO_x, 24.40 lb/hr for CO, and 0.18 lb/hr for VOC. The emission limits are based on ARM 17.8.749 determinations that were established by the Department. Emissions from EU1 are required to be controlled by a Non-Selective Catalytic Reduction (NSCR) catalyst. The minimum stack height for EU1 is 9.91 meters above ground level.

The 190-hp Ingersoll-Rand Compressor Engine (EU4) shall be limited to 1,314 hours of operation during any rolling 12-month time period. The operational limit is based on ARM 17.8.749 determinations that were established by the Department. The minimum stack height for EU4 is 10.97 meters above ground level.

Each of the 300-hp Ingersoll-Rand Compressor Engines (EU5, EU6, and EU7) shall be limited to 4,380 hours of operation each during any rolling 12-month time period. The operational limit is based on ARM 17.8.749 determinations that were established by the Department. The minimum stack height for EU5, EU6, and EU7 is 10.97 meters above ground level.

The 660-hp Ingersoll-Rand Compressor Engine (EU8) is limited to 17.46 lb/hr for NO_x. The emission limit is based on ARM 17.8.749 determination that was established by the Department. The minimum stack height for EU8 is 14.94 meters above ground level.

Each of the 880-hp Ingersoll-Rand Compressor Engines (EU9 and EU10) are limited to 23.28 lb/hr for NO_x. The emission limit is based on ARM 17.8.749 determination that was established by the Department. The minimum stack height for EU9 and EU10 is 14.94 meters above ground level.

The 1,149-hp Solar Turbine (EU15) is limited to 5.07 lb/hr for NO_x, 7.60 lb/hr for CO, and 2.53 lb/hr for VOC. The emission limits are based on Best Available Control Technology (BACT) determinations that were established by the Department.

The 559-hp Waukesha Compressor Engine (EU17) is limited to 2.46 lb/hr for NO_x, 4.06 lb/hr for CO, and 1.23 lb/hr for VOC. The emission limits are based on Best Available Control Technology (BACT) determinations that were established by the Department.

In addition, emissions from each of the engines installed before November 23, 1968, are limited to 40% opacity averaged over 6 consecutive minutes and particulate matter caused by the combustion of fuel is limited to $E = 0.882 * H^{-0.1664}$. Emissions from each of the engines installed after November 23, 1968, are limited to 20% opacity averaged over 6 consecutive minutes and particulate matter caused by the combustion of fuel is limited to $E = 1.026 * H^{-0.233}$. Further, fuel burned in the engines must not contain sulfur compounds in excess of 50 grains per 100 standard cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions.

B. Monitoring Requirements

ARM 17.8.1212(1) requires that all monitoring and analysis procedures or test methods required under applicable requirements are contained in operating permits. In addition, when the applicable requirement does not require periodic testing or monitoring, periodic monitoring must be prescribed that is sufficient to yield reliable data from the relevant time period that is representative of the source's compliance with the permit.

The requirements for testing, monitoring, recordkeeping, reporting, and compliance certification sufficient to assure compliance does not require the permit to impose the same level of rigor for all emissions units. Furthermore, it does not require extensive testing or monitoring to assure compliance with the applicable requirements for emission units that do not have significant potential to violate emission limitations or other requirements under normal operating conditions. When compliance with the underlying applicable requirement for a insignificant emissions unit is not threatened by lack of regular monitoring and when periodic testing or monitoring is not otherwise required by the applicable requirement, the status quo (**i.e., no monitoring**) will meet the requirements of ARM 17.8.1212(1). Therefore, the permit does not include monitoring for insignificant emissions units.

The permit includes periodic monitoring or recordkeeping for each applicable requirement. The information obtained from the monitoring and recordkeeping will be used by the permittee to periodically certify compliance with the emission limits and standards. However, the Department may request additional testing to determine compliance with the emission limits and standards.

C. Test Methods and Procedures

The operating permit may not require testing for all sources if routine monitoring is used to determine compliance, but the Department has the authority to require testing if deemed necessary to determine compliance with an emission limit or standard. In addition, the permittee may elect to voluntarily conduct compliance testing to confirm its compliance status.

D. Recordkeeping Requirements

The permittee is required to keep all records listed in the operating permit as a permanent business record for at least five years following the date of the generation of the record.

E. Reporting Requirements

Reporting requirements are included in the permit for each emissions unit and Section V of the operating permit "General Conditions" explains the reporting requirements. However, the permittee is required to submit semi-annual and annual monitoring reports to the Department and to annually certify compliance with the applicable requirements contained in the permit. The reports must include a list of all emission limit and monitoring deviations, the reason for any deviation, and the corrective action taken as a result of any deviation.

F. Public Notice

In accordance with ARM 17.8.132, a public notice was published in the *Fallon County Times* newspaper on or before December 5, 2003. The Department provided a 30-day public comment period on the draft operating permit from December 5, 2003, to January 6, 2004. ARM 17.8.1232 requires the Department to keep a record of both comments and issues raised during the public participation process. The comments and issues received by Date will be summarized, along with the Department's responses, in the following table. All comments received during the public comment period will be promptly forwarded to WBI so they may have an opportunity to respond to these comments as well.

Summary of Public Comments

Person/Group Commenting	Comment	Department Response

G. Draft Permit Comments

Summary of Permittee Comments

Permit Reference	Permittee Comment	Department Response

Summary of EPA Comments

Permit Reference	EPA Comment	Department Response

SECTION IV. NON-APPLICABLE REQUIREMENT ANALYSIS

Section IV of the operating permit “Non-applicable Requirements” contains the requirements that the Department determined were non-applicable. The following table summarizes the requirements that WBI identified as non-applicable and contains the reasons that the Department did not include these requirements as non-applicable in the permit.

Requirement not Identified in the Operating Permit

Applicable Requirement	Reason
40 CFR 61 Subpart M National Emissions Standards for Hazardous Air Pollutants - Asbestos	This is a federal regulation that has specific procedural requirements that may become relevant to the major source during the permit term.

SECTION V. FUTURE PERMIT CONSIDERATIONS

A. MACT Standards

As of the issuance date of draft Operating Permit OP2484-01, the Department is unaware of any future NSPS Standards that may be promulgated that will affect the Symons Central Compressor Station.

B. NESHAP Standards

As of the issuance date of draft Operating Permit OP2484-01, the Department is unaware of any future NSPS Standards that may be promulgated that will affect the Symons Central Compressor Station.

C. NSPS Standards

As of the issuance date of draft Operating Permit OP2484-01, the Department is unaware of any future NSPS Standards that may be promulgated that will affect the Symons Central Compressor Station.

D. Risk Management Plan

As of the issuance date of draft Operating Permit OP2484-01, this facility does not exceed the minimum threshold quantities for any regulated substance listed in 40 CFR 68.115 for any facility process. Consequently, this facility is not required to submit a Risk Management Plan.

If a facility has more than a threshold quantity of a regulated substance in a process, the facility must comply with 40 CFR 68 requirements no later than June 21, 1999; three years after the date on which a regulated substance is first listed under 40 CFR 68.130; or the date on which a regulated substance is first present in more than a threshold quantity in a process, whichever is later.